Toward a Civilized Vaccination Discussion: Abandoning the False Assumption that Scientific Goals Are Shared by All

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ABSTRACT

While many attribute vaccine hesitancy to a lack of understanding science and a decrease in the acknowledgement of facts presented by those with expertise, this paper argues vaccine hesitancy depends on other factors, primarily a lack of trust in the pharmaceutical and governmental sectors and a set of priorities that is not always aligned with those of the scientific community. While vaccine hesitancy is often propelled by protective instincts, it also reflects the plurality of views surrounding medicalization, the role of science in people's family and personal choices, and the appropriate goal of demanding industry accountability. Derogatory language for those who are vaccination hesitant is not respectful or effective and furthers the distrust and reputational problems associated with pharmaceutical companies, government, and medicine.

INTRODUCTION

Journal articles and the mainstream media portray vaccination skeptics as gullible and ignorant. They clump vaccination skeptics with "antivaccinationists" or "anti-vaxxers" (referred to here as "nonvaccinationists") describing both using inflammatory, negative language. Vaccination skeptics push back against powerful pharmaceutical interests and their hold on the government. Many of them understand the science but evaluate it through a lens of competing beliefs and values. Both journalistic and academic critiques ignore valuable civic oversight, underestimate the ability of nonscientists to digest scientific information, and rely on misconceptions about the reasons for vaccination skepticism. The mainstream media, academic articles, and science professionals should move toward language that is conducive to productive conversations. The public health goal of vaccination for highly contagious or very dangerous pathogens arguably would be better served by addressing the elements that create distrust of pharmaceutical companies, government, and the scientific community.

Bioethics has a role in fixing the balance of power and creating an atmosphere where discussions are welcomed. Bioethicists can facilitate an ethical, scientific, and cultural conversation by understanding the positions of the skeptical. When bioethicists join scientists in labeling all skeptics ignorant, they abuse their role in scientific accountability. Bioethics must not become a tool with which scientists can shame a minority group. By taking a side, bioethicists fuel the ignorance narrative to the detriment of civic oversight, undermining science, trust, and respect.

I. The portrayal of vaccination skeptics by scholarly articles and the mainstream media

Vaccination conversations reflect certain characteristics of abortion conversations in which two extreme believers accuse each other of bad evidence, bad morals, and bad conclusions, each

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misunderstanding the views of the other; each, often incorrectly, attributing the extreme view to the other, and, each clinging to a polar extreme while ignoring mainstream views that hover around the equator. Pro-vaccination absolutists depict nonvaccinationists as ignorant victims of debunked theories who promote conspiracy theories and autism fearmongering.[1] Nonvaccinationists tend to depict pro-vaccine absolutists as non-contemplative rule followers who do not think enough to question vaccine safety or efficacy. Vaccination skeptics are swept up in the broad group labeled "anti-vaxxers."

By attributing the extreme position to the vaccination skeptic who is mildly hesitant, articles close the door on valuable skepticism and constructive criticism. Words used by professionals in academic articles include ignorant, denialism, emotional, lacking scientific literacy, beliefs, trope, psychological factors, purity, propaganda, and misinformation group or campaign. Name calling and derogatory words that imply gullibility are unlikely to encourage trust or respect. "Tragically" was used in one article that also implied those with children whose deaths were caused by a vaccine should not convey their personal stories on the internet.[2] The use of the word "propaganda" dismisses facts about vaccination injury.

Ignorance appears in titles as well: "The Anti-Vaccine Movement: A Lesson in Ignorance,"[3] "Antivaxxers Spread a Plague of Ignorance,"[4] "How anti-science ignorance has stoked a real public health crisis,"[5] "Anti-Vaxxers and Autism: Disability Culture vs. Ignorance,"[6] "Anti-vaxxers ignore science and put kids at risk,"[7] "Seeking a Vaccine for Ignorance,"[8] and "Anti-vaxxers hate your children."[9] In the case of the Daily Mail, as the headline asserts, "End the MMR vaccine ignorance: Myths and online scare stories have seen children's vaccinations plummet and infections soar, which is why the Mail is launching a campaign to encourage parents to inoculate," the newspaper itself is determining there are sides to be taken and is taking a side rather than reporting science, data, and cultural observations.[10] One Psychiatric

[1] Many articles and pro-vaccine advocates cite Andrew Wakefield's fraudulent research.
[2] F. DeStefano, HM Bodenstab, PA Offit PA, "Principal Controversies in Vaccine Safety in the United States." *Clinical Infectious Diseases*. 2019;69(4):726-731. doi:10.1093/cid/ciz135
[3] C. Sheridan, "The Anti-vaccine Movement: a lesson in ignorance," *Yale Global Health Review,* 4 (2016). https://yaleglobalhealthreview.com/2016/01/25/the-anti-vaccine-movement-a-lesson-in-ignorance/
[4] Froma Harrop, "Antivaxxers spread a Plague of Ignorance," *Real Clear Politics,* (January 22, 2019). *https://www.realclearpolitics.com/articles/2019/01/22/anti-vaxxers_spread_a_plague_of_ignorance_139225.html*
[5] Dick Polman, "How anti-science ignorance has stoked a real public health crisis," *Penn Capital-Star*, https://www.penncapital-star.com/commentary/how-anti-science-ignorance-has-stokes-a-real-public-health-crisis-dick-polman/ May 6, 2019.
[6] Dov Greenbaum, "Anti-Vaxxers and Autism: Disability Culture vs. Ignorance," *Calcalis Tech,* November 29, 2019. https://www.calcalistech.com/ctech/articles/0,7340,L-3774787,00.html
[7] Editorial staff, "Anti-vaxxers ignore science and put kids at risk," *Tampa Bay Times,* June 19, 2019. https://www.tampabay.com/opinion/editorials/anti-vaxxers-ignore-science-and-put-kids-at-risk-editorial-20190619/
[8] K Parker, "Seeking a Vaccine for Ignorance," *Washington Post,* February 3, 2015.https://www.washingtonpost.com/opinions/kathleen-parker-seeking-a-vaccine-for-ignorance/2015/02/03/70133504-abd9-11e4-abe8-e1ef60ca26de_story.html
[9] I Mackay, "Anti-vaxxers hate your children," *Virology Down Under*, November 27, 2019. https://virologydownunder.com/anti-vaxxers-hate-your-children/
[10] S Borland, B Spencer, E Hayward, "End the MMR vaccine ignorance: Myths and online scare stories have seen children's vaccinations plummet and infections soar, which is why the Mail is launching a campaign to encourage parents to inoculate," October 10, 2019. https://www.dailymail.co.uk/news/article-7556137/MMR-End-vaccine-ignorance.html

Times article developed a new word, immoronic to mix immoral and moronic: "Have We Entered the Age of the Immoronic?"[11]

By referring to Andrew Wakefield excessively, many scholarly articles push the concept that vaccination skeptics are relying only on disproven research and that their skepticism is completely science-based.[12] I argue a belief that the debunked Wakefield study is correct is not a large factor in vaccination skepticism, something that existed long before Andrew Wakefield. The Wakefield research is mentioned in almost every article about vaccination skepticism, vaccination hesitancy, and nonvaccinationists.[13] Scientists seem to believe a scientific disconnect is the primary reason for choosing not to vaccinate or to vaccinate on a slower schedule.

Most articles imply vaccination acceptance is an all or nothing enterprise, that people questioning one vaccine must oppose all vaccines, and that the heart of the controversy is parental behavior or personality traits that prevent objective views of science. Articles are dismissive of those who have experienced vaccine injury or who point out a vaccine related death. Olivia Benecke, et al. put "vaccine injury" in quotes making it seem mythical. The authors recognize that the rollout of the original measles vaccine was too quick and that "early side effects left some parents skeptical" yet they undermine their own call for trust by suggesting doctors' pro-vaccine message also include "preventable disease horror stories."[14] Competing with exaggerations found on nonvaccinationist websites would further undermine the prestige of science. Identifying all vaccination skeptics as conspiracy theorists fuels the controversy.[15] While some recognize that patients who can voice concerns and develop trust of their physician will be better off, they tend to tee up a controversy by blaming untrusting parents rather than offering physicians steps to foster trust.[16] When the writing is geared toward physicians, it likely alienates vaccination skeptics as they are depicted as know-nothing parents to be dealt with rather than listened to. Telling one adversary how to overcome another will not foster trust.

In "The Age-Old Struggle against the Antivaccinationists," in the New England Journal of Medicine, Gregory Poland and Robert Jacobson present some history of the waxing and waning of "antivaccine thinking." They describe a "spectrum of antivaccinationists" that ranges from "simply ignorant" to "radical" conspiracy theorists.[17] The article dismisses the middle range: parents who have appropriate skepticism and understand the history of vaccine safety. They say, "Patients and parents are seeking to

[11]R. W. Pies, "Have We Entered the Age of the Immoronic?" *Psychiatric Times,* January 2, 2020. https://www.psychiatrictimes.com/couch-crisis/have-we-entered-age-immoronic

[12] Olivia Benecke, BA and Sarah Elizabeth DeYoung PhD, "Anti-Vaccine Decision-Making and Measles Resurgence in the United States." *Global pediatric health*, 6 (2019), doi:10.1177/2333794X19862

[13] A google search of "Andrew Wakefield vaccine" yields 1,010,000 documents while a google search of "Vioxx fraud" yields only 305,000 items. A search of "Vioxx fraud anti-inflammatory drugs" yields 132,000 results.

[14] Benecke, et al.

[15] For example, see A. Hussain, S Ali, M Ahmed, and S Hussain, "The Anti-vaccination Movement: A Regression in Modern Medicine." *Cureus*, 10:7 (2018) e2919 doi:10.7759/cureus.2919 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6122668/

[16] For example, Swingle, Christopher A. "How Do We Approach Anti-Vaccination Attitudes?." *Missouri Medicine*, 115,3 (2018): 180-181.

[17] Gregory A. Poland, M.D. and Robert M. Jacobson, M.D. "The Age-Old Struggle against the Antivaccinationists," *New England Journal of Medicine,* 2011; 364:97-99 DOI: 10.1056/NEJMp1010594

balance risks and benefits." They follow that sentence with the assumption that parents who engage in that balancing exercise and then conclude a vaccination should be put off until a child is older or until the underlying disease becomes an imminent threat lack "scientific literacy."[18]

Even the title of Paul Offit's book, "Deadly Choices: How the Anti-Vaccine Movement Threatens Us All,"[19] implies a deadliness that is nonexistent at the US current level of vaccination. Offit often engages in inflammatory rhetoric like, "Frankly, these Caucasian, suburban, educated parents believe they can Google the word *vaccine* and get as much information as anybody… These people are educated just well enough to make terrible decisions for their children." [20] Many of those parents have the healthiest children in our country judged by vital statistics like blood pressure and obesity.[21] Offit referred to an information disconnect but Google does provide access to almost every article peer-reviewed and published by scientists about vaccines although some require journal subscriptions or a small payment. The parents Offit targets in his rhetoric are often the first to choose vaccination when the actual risk increases since their skepticism is not religious, absolute, or based on inaccurate news or incorrect science. Douglas Diekema argues that state compulsion of vaccination would rarely be justified under a strict harm principle because the threat of a significant harm from remaining unvaccinated is usually low.[22] Potential harm increases if the underlying disease appears in the community. Articles fail to carve out any understanding of those who question vaccine safety but tend to seek the vaccine when the likelihood of exposure increases. In the recent New York measles outbreak, those being true to a religious belief (regardless of whether their religious leaders agree) vary from other skeptical parents who would review their vaccine decisions readily based on actual risk.

II. Discussing vaccination in valuable ways

Very few in academics articulate the value of vaccination skeptics. In "The History of Vaccines and Immunization: Familiar Patterns, New Challenges," authors Alexandra Minna Stern and Howard Markel note the value of vaccination skeptics: "Although antivaccinationists are still often portrayed as an annoying thorn in the side of medical progress, their concerns for safety and willingness to perform the duty of civic oversight has had some positive effects, especially in terms of popular health education."[23]

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[18] Poland and Jacobson.

[19] P Offit, *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All.* (Basic Books, 2010).

[20] Lubrano, Albert, "Anti-vaccine parents are often white, college-educated, 'Whole Foods moms'" *Philadelphia Inquirer*, April 10, 2019. https://www.inquirer.com/news/middle-class-working-class-vaccine-anti-vaxxers-measles-cdc-20190410.html

[21] Seattle Children's Hospital, "Zip code as important as genetic code in childhood obesity," *Science Daily*, https://www.sciencedaily.com/releases/2012/04/120410163539.htm (the factors in obesity include healthy habits, access to parks and exercise, and healthy foods.) See CDC website, *data, data, maps, and trends* https://www.cdc.gov/obesity/data/databases.html. See also https://datacenter.kidscount.org/

[22] Diekema, Douglas, "Parental Refusals of Medical Treatment: The Harm Principle as a Threshold for State Intervention," *Theoretical Medicine* 25: 243-264, 2004.

[23] AM Stern and H Markel, "The History of Vaccines and Immunization: Familiar Patterns, New Challenges," *Health Affairs,*24(3):611-621. (2005). doi:10.1377/hlthaff.24.3.611 https://www.healthaffairs.org/doi/full/10.1377/hlthaff.24.3.611?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub++0pubmed&

Scientific scholarly articles differ from a social sciences approach set forth by Bernice Hausman. Hausman's book, *Anti/Vax*, applies a social analysis that places vaccination skepticism within a worldview in which flourishing and autonomy prevail, people have a preference for a side effect from a biological disease rather than from a government-mandated pharmaceutical creation (they value disease mechanisms), and people question the profits generated by the sale of vaccines.[24] While scientific authors assert that vaccine skepticism contradicts science, Hausman articulates a need to discuss the "social controversy" through a social means asserting scientific controversy is not to blame for a disconnect between those favoring vaccination and those hesitant or opposed to it. In "'Poisonous, Filthy, Loathsome, Damnable Stuff': The Rhetorical Ecology of Vaccination Concern," Hausman, et al., address longstanding reasons for vaccine hesitancy including fear of contamination, distrust, and distaste for compulsive government requirements. She asserts that social media is not the problem: vaccination skeptics existed before its inception. Hausman boldly notes that parents questioning doctors should not be "characterized as irrational."[25] Vaccination skeptics follow rational patterns: in the age of overprotection, helicopter parenting, and a body of nearly intrusive laws to protect young bodies (car seat requirements, pool fence requirements, age requirements for staying home alone and for consuming alcohol), skeptics are merely wanting assurance that the vaccine is safe.

There is a disconnect in the two approaches: medical experts and scientists cannot persuade all consumers that vaccines are unequivocally safe (partly because there are known risks) and unequivocally necessary (partly because some diseases are almost eradicated worldwide and the likelihood of contracting them is extremely low); social scientists do not control the bulk of the literature and can be powerless in helping the scientific community communicate honestly and effectively. Bioethicists can bridge this gap.

To avoid inciting anger and division, scientists are not the right population to investigate social channels unless they can improve their use of language, directness, and clarity. In the *Righteous Mind*, Jonathan Haidt discusses political and religious mindsets from a social and cultural perspective, urging people to understand each other's worldview.[26] Scientists seem to have a formulaic approach: research says X, so, anyone not acting accordingly is irrational. Scientists should not assume a high demand for a vaccine when there is a low probability of contracting the disease it protects against. In the US, a polio vaccination right now should be in less demand than a COVID-19 vaccination based on the possibility of exposure to the disease. Imminence is relevant to the private demand and the public health aspect.

If doctors choose to write about social science concepts, there would be value in learning to speak the language of the communities that challenge vaccination: the language of respect for religion, patriotism, liberty, common sense, practicality, and those who are less educated or nonelites.[27] The other stereotype of skeptics, the suburban housewife Offit dismisses, speaks a language of nature, organic

[24]Hausman, *Anti/Vax*.

[25] B Hausman, "'Poisonous, Filthy, Loathsome, Damnable Stuff": The Rhetorical Ecology of Vaccination Concern," *Yale Journal of Biology and Medicine* 87 (2014): 403-416. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4257028/ See also Hausman, *Anti/Vax*.

[26] J Haidt, *The Righteous Mind: Why Good People Are Divided by Politics and Religion*. (New York: Pantheon Books, 2012).

[27] Haidt helps bring sides together by presenting ways to speak the other's language and understand their views in the realm of religion and politics, not vaccination.

foods and products, bodily respect, and non-medicalization. The scientific community presupposes its goals are the obvious goals of everyone. The common goal scenario provides a false basis for assuming scientific conflict is the reason for vaccine skepticism.

III. Public Trust

There is an understandable problem with public trust. The opioid crisis was fueled by pharmaceutical companies' failure to disclose accurate risk of addiction. Vioxx was implicated in 140,000 heart attacks and 60,000 deaths when its maker failed to disclose a known side effect.[28] Merck is a large vaccine producer and its products should be properly scrutinized. Many other pharmaceutical companies have been fined for withholding side effect data as well.[29] Pharmaceutical ethics violations are related to vaccination scrutiny because they provide rational distrust*, i.e.,* healthy skepticism. The Vioxx scandal implies the public does understand the ethics and science: the failure to disclose a known side effect undermines trust. Many will not be swayed by science as well as they would be by a wall between industry and government, fewer mandatory vaccinations, and pharmaceutical accountability. Eliminating blanket legal immunity for vaccine producers could instill more confidence in products, although in light of an emergency need for a COVID-19 vaccine, the legal immunity would serve a valuable purpose.

In addition to past fraud, there is a revolving door problem whereby pharmaceutical executives serve in government roles and where pharmaceutical companies recruit government FDA staffers who push through drug approvals.[30] The trust between patients, doctors, pharmaceutical companies, and the government will not be repaired until scholarly articles recognize that some people are skeptical of vaccination because of the many inappropriate relationships between big pharma and government.

IV. The not so great divide: COVID-19 diffuses the polarization

COVID-19 can help remedy the polarization by allowing the middle ground: healthy conversation about need, safety, and efficacy. In the case of a COVID-19 vaccine, the conversation could be steered toward civilized discourse. The movement to test COVID-19 vaccines on human subjects before the completion of animal testing is both a reflection of a dire circumstance for which a vaccine would be a scientific solution and a relaxation of the precautionary principle that normally should apply. Some in the

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[28] https://www.drugwatch.com/vioxx/ See also J.H. Tanne, (2005). "Journal criticises Vioxx study for omitting three heart attacks," *British Medical Journal*, 331, no 7530 (2005):1423. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1315637/

[29] Blankenship, Kyle, "Top 10 pharma settlements since 2018," FiercePharma, Nov 19, 2019. https://www.fiercepharma.com/special-report/top-10-pharma-settlements-since-2018 Purdue, Teva, and Johnson and Johnson among others were found liable in opioid lawsuits. GlaxoSmithKline was fined for withholding side effect data about Avandia. AstraZeneca settled for $520 million for marketing Seroquel to the elderly and children despite a suspicion that is raises risk of death. See also https://www.fiercepharma.com/pharma/merck-gsk-pfizer-j-j-among-top-10-u-s-pharma-settlements-all-time

[30] C Piller, "FDA's revolving door: Companies often hire agency staffers who managed their successful drug reviews," Science Magazine, Jul. 5, 2018. https://www.sciencemag.org/news/2018/07/fda-s-revolving-door-companies-often-hire-agency-staffers-who-managed-their-successful

bioethics and scientific communities recommend caution.[31] Others in bioethics argue that rushing into a COVID-19 vaccine is worth it, encouraging testing on human subjects.[32] There is division within the scientific community as well because both sides have reasonable arguments. COVID-19 is an unusual fact pattern: it allows both sides to see each other as reasonable. COVID-19 may be the impetus for normalizing vaccine conversations.

COVID-19 clarifies the obvious: vaccination skepticism is not anti-science. It is a demonstration that the public has lived through scientific error, unwanted side effects, and even unnecessary deaths. The scientific community can win consumer confidence back through transparency, proof of safety and efficacy, and an appropriate rationale like eliminating a deadly contagious pathogen that is an imminent threat.

V. Conclusion

Regardless of their ability to grasp science, people have different views of the role science should have in decisions as seen by wide variations in prescription drug use, food choices, lifestyles, and vaccination choices. Scientific journalism has created a skewed framework by assuming that the goals of science are expected to be unquestioned even when they may not align with the goals of many people. Humanity and science converge in bioethics creating an opportunity for oversight of what could be a productive conversation. If a COVID-19 vaccine were created with enough doses to meet demand, earning the public's trust should begin now with a language of respect. While demand for a vaccine will likely vastly outweigh supply, those in public health wanting universal vaccination for COVID-19 have the correct fact pattern: an imminent threat of a deadly transmissible disease. Many vaccination skeptics want a safe and effective vaccine. Welcoming their civic oversight ensures when a vaccine is developed, they will trust it. Vaccination skeptics' acceptance of a COVID-19 vaccine would contribute to ending the pandemic safely.

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[31] K Maschke and M Gusmana, "Ethics and Evidence in the Search for a Vaccine and Treatments for Covid-19," *The Hastings Bioethics Forum*, April 15, 2020. https://www.thehastingscenter.org/ethics-and-evidence-in-the-search-for-a-vaccine-and-treatments-for-covid-19/; P Boyle, "Here's Why We Can't Rush a COVID-19 Vaccine," AAMC News online, March 31, 2020. https://www.aamc.org/news-insights/here-s-why-we-can-t-rush-covid-19-vaccine and https://www.nature.com/articles/d41586-020-00751-9; AJ London and J Kimmelman, "Against pandemic research exceptionalism," *Science,* 368, Issue 6490 (April 23, 2020): 476-477. DOI: 10.1126/science.abc1731 https://science.sciencemag.org/content/early/2020/04/22/science.abc1731; and M Mckenna, "We Need a COVID-19 Vaccine—Let's Get It Right the First Time," *Wired*, April 8, 2020. https://www.wired.com/story/we-need-a-covid-19-vaccine-lets-get-it-right-the-first-time/

[32]Editorial Board, "Eradicating COVID-19 Might Justify Risky Vaccine Trials," Bloomberg, March 18, 2020. https://www.bloomberg.com/opinion/articles/2020-05-18/covid-19-vaccine-progress-might-be-worth-risky-challenge-trials?srnd=opinion&sref=iRF1Wgnu&fbclid=IwAR0fcDKECPMdJ6MOKuzda70WTl4kWbYeKDncfk_q19oDS1Ff-MZYSa0P1EA